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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WIN-CHUNG LEE, AVELINO F. LIMA and
I-CHUNG W. WANG

Appeal 2008-6017
Application 10/799,056
Technology Center 1700

Decided:¹ March 13, 2009

Before TERRY J. OWENS, CATHERINE Q. TIMM and
KAREN M. HASTINGS *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

The Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1-21, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

The Invention

The Appellants claim a thermoplastic polyamide composition containing a polyvinylbutyral toughener and a mineral filler, and claim articles made from the composition. Claim 1 is illustrative:

1. A thermoplastic polyamide composition comprising: (a) from about 5 to about 30 weight percent of a free-flowing toughener comprising from about 20 weight percent to about 95 weight percent polyvinyl butyral; (b) 95 to 25 weight percent polyamide that is melt processible below about 320°C and which has a number average molecular weight of at least 5,000; (c) a mineral filler in an amount of from about 10 to about 45 weight percent of the total composition; and (d) optionally a coupling agent.

The References

Hedrick	3,419,517	Dec. 31, 1968
Blatz	5,770,654	Jun. 23, 1998

The Rejection

Claims 1-21 stand rejected under 35 U.S.C. § 103 over Blatz in view of Hedrick.

OPINION

We affirm the Examiner's rejection.

The Appellants argue the claims as a group (Br. 1-11; Reply Br. 1-5). We therefore limit our discussion to one claim, i.e., claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Issue

Have the Appellants shown reversible error in the Examiner's determination that the applied references would have rendered obvious, to one of ordinary skill in the art, a thermoplastic polyamide composition

comprising a polyvinylbutyral toughener and about 10 to about 45 wt% of a mineral filler?

Findings of Fact

Blatz, which is incorporated by reference into the Appellants' Specification (Spec. 8:10-11), discloses a composition consisting essentially of 50-90 wt% of a polyamide which is melt-processable at about 180-270°C, and 50-10 wt% of recovered plasticized polyvinylbutyral, the amount of plasticizer in the recovered polyvinylbutyral being about 15-35 wt% (col. 1, ll. 46-51). The plasticized polyvinylbutyral functions to toughen the polyamide and thereby render it suitable for applications where improved toughness is required such as packaging subject to rough handling (col. 3, ll. 17-30; col. 4, ll. 3-9). The composition can include a compatibilizing agent between the polyamide and the plasticized polyvinylbutyral to provide improved flexural modulus (col. 3, ll. 17-43). Additives in the recovered plasticized polyvinylbutyral other than plasticizers are present in only small amounts, no more than a fraction of one percent each (col. 2, ll. 21-23), and the polyamide contains small amounts of dyes, pigments and stabilizers (col. 4, ll. 30-31).

Hedrick discloses a polyamide composition containing about 45 to about 95 wt% of a filler which can be a mineral filler and which can be treated with a coupling agent to provide an adherent bond between the filler and the polyamide (col. 4, ll. 4-10). Hedrick teaches that the filler increases the polyamide's Young's modulus of elasticity but reduces the flexural and tensile strengths and the impact resistance, and that "[w]hich combination of properties should be emphasized for improvement depends upon the uses envisioned for the final product" (col. 2, ll. 16-25).

Analysis

The Appellants argue that because Blatz's composition consists essentially of the polyamide and the recovered plasticized polyvinylbutyral (col. 1, ll. 46-52) it excludes a filler which, the Appellants argue, would materially affect the basic and novel characteristics of Blatz's invention (Br. 4-7; Reply Br. 1-2). The Appellants also point out Blatz's disclosure that the composition is to contain only small amounts of components other than the polyamide and the plasticized polyvinylbutyral (Br. 6-7; Reply Br. 1-2).

Blatz does not indicate why the "consisting essentially of" language is used. Perhaps it is an effort to avoid the prior art. In any event, the relevant issue when obviousness is determined is not whether one reference suggests combining its teachings with another reference, but whether the combined teachings of the references would have fairly suggested the claimed invention to a person of ordinary skill in the art. *See In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995). Hedrick's indication that the proper combination of properties of a polyamide composition depends upon the uses envisioned for the combination (col. 2, ll. 22-25) would have led one of ordinary skill in the art, through no more than ordinary creativity, to combine Blatz's plasticized polyvinylbutyral and Hedrick's mineral filler to obtain the desired balance of impact (provided by the plasticized polyvinylbutyral) and Young's modulus of elasticity (provided by the mineral filler). *See KSR Int'l. Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (In making an obviousness determination one "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ").

The Appellants argue that “[t]here is nothing in either Blatz or Hendrick [sic] that would indicate the compatibility of the toughener in filled systems” (Br. 7).

That compatibility would have been indicated to one of ordinary skill in the art by the use of compatibilizing agents by both Blatz (col. 3, ll. 17-43) and Hedrick (col. 2, ll. 48-61; col. 4, ll. 7-10).

For the above reasons we conclude that the Appellants’ claimed invention would have been *prima facie* obvious to one of ordinary skill in the art.

The Appellants argue that they have shown that the trend of increased amounts of mineral filler causing increased flexural modulus, strength and stiffness, but decreased impact, can be unexpectedly reduced by adding plasticized polyvinylbutyral (Br. 8; Reply Br. 3-5). Specifically, the Appellants argue that “when the toughener of the invention is used in mineral filled systems, the impact values are comparable or better than those obtained with Zytel® 101 nylon resin by itself. This result is unexpected” (Br. 11). In support of those arguments the Appellants rely upon a comparison between data in their Specification and data in the public domain (Br. 8). The Appellants state that the comparison, which is shown on pages 10 and 11 of their Specification, “is not intended to show comparison measured using the same techniques and equipment, and instead is intended to show trends” (Br. 9).

For the following reasons the Appellants’ comparison is not effective for overcoming the *prima facie* case of obviousness.

First, the Appellants have not established that the data from the public domain is reliable.

Second, the Appellants' showing of unexpected results does not provide a comparison of the claimed invention with the closest prior art. *See In re Baxter Travenol Labs.*, 952 F.2d 388, 392 (Fed. Cir. 1991); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). The closest prior art appears to be Blatz, and the Appellants have not compared to Blatz's compositions.

Third, it is not enough for the Appellants to show that the results for the Appellants' invention and the comparative examples differ. The difference must be shown to be an unexpected difference. *See In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973); *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). The Appellants have not established that it would have been unexpected by one of ordinary skill in the art that combining a relatively large amount of plasticized polyvinylbutyral for increased impact with a relatively small amount of mineral filler, known to decrease impact, would result in a net increase in impact compared to a polyamide to which no plasticized polyvinylbutyral or mineral filler has been added.

Third, the evidence is not commensurate in scope with the claims. *See In re Grasselli*, 713 F.2d 731, 743 (Fed. Cir. 1983); *In re Clemens*, 622 F.2d 1029, 1035 (CCPA 1980). The Appellants' claims encompass wide ranges of amounts and compositions of the polyvinylbutyral component, the polyamide and the mineral filler, yet few compositions are included in the Appellants' comparison. We find in the evidence of record no reasonable basis for concluding that the great number of materials encompassed by the Appellants' claims would behave as a class in the same manner as the particular materials tested. *See In re Lindner*, 457 F.2d 506, 508 (CCPA 1972); *In re Susi*, 440 F.2d 442, 445-46 (CCPA 1971).

Fourth, the cause-and-effect relationship between the relative amounts of plasticized polyvinylbutyral and mineral filler versus strength and impact is lost in a welter of unfixed variables. See *In re Heyna*, 360 F.2d 222, 228 (CCPA 1966); *In re Dunn*, 349 F.2d 433, 439 (CCPA 1965). As acknowledged by the Appellants, the techniques and equipment used to obtain the various data points are not known to be the same (Br. 9). The scatter which apparently results from such differences is indicated by the Appellants' impact data on page 11 of their Brief where, for mineral filler contents of 10%, 20%, 30% and 40%, the impact values are, respectively, 89, 46, 100 and 60 J/m. Consequently, the data do not show the trend argued by the Appellants (Br. 9).

Conclusion of Law

The Appellants have not shown reversible error in the Examiner's determination that the applied references would have rendered obvious, to one of ordinary skill in the art, a thermoplastic polyamide composition comprising a polyvinylbutyral toughener and about 10 to about 45 wt% of a mineral filler.

DECISION/ORDER

It is ordered that the Examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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